

## REMARKS

This paper is filed in response to the Final Office Action mailed March 16, 2010. Claims 1, and 3-14 were pending in the application. Claims 2, and 5-7 have been cancelled. Claims 1, 3-4 and 8-14 have been previously presented. Therefore, claims 1-4 and 8-14 are now pending in the application and are submitted for reconsideration and allowance.

### **35 U.S.C. §112, second paragraph**

Claims 5-7, stand rejected under 35 U.S.C. § 112, second paragraph as being indefinite and failing to particularly point out the Applicants' invention.

Applicants have canceled claims 5-7. As such, Applicants submit that the instant §112, second paragraph rejections have been obviated and should be withdrawn.

### **35 U.S.C. §103(a)**

Claims 1, 3-14 stand rejected under 35 U.S.C. § 103(a) as being obvious in view of EP 0718270 A2 to Wessendorf.

To establish a *prima facie* case of obviousness, the Examiner must demonstrate three elements: some suggestion or motivation to modify or combine the reference teachings, a reasonable expectation of success, and the combined prior art references must teach or suggest all the claim limitations. MPEP § 2141. Applicants respectfully submit that the Examiner has failed to establish a *prima facie* case of obviousness, in that the Examiner has failed to provide a combination of prior art references, alone or with general knowledge that teach or suggest all the claim limitations.

#### **Claims 1 and 3-14 in view of Wessendorf**

The Office Action asserts that Wessendorf teaches in example 4 a reaction with glycerin, acetone and i-butene. The Examiner admits that "Wessendorf does not seem to explicitly teach etherification of the still free hydroxyl groups of the acetal produced." However, the Examiner goes on to state that "it would have been obvious to one of ordinary skill in the art that the 2,2-dimethyl-4-hydroxylmethyl-1,3-dioxolan would react with the i-butene to form ethers."

Applicants respectfully disagree with this assertion and further maintain that the Examiner has provided no evidence for this assertion, as required. *See* MPEP § 2144.03. ("It is never appropriate to rely solely on "common knowledge" in the art without evidentiary

support in the record, as the principal evidence upon which a rejection was based. *Zurko*, 258 F.3d at 1385, 59 USPQ2d at 1697).

That notwithstanding, the process and resulting product in the Wessendorf reference is different from the claimed invention as amended. An essential difference is that in the invention there are two separate reaction steps that are executed consecutively. In the first step, glycerine is reacted in the presence of the acetal (the i-butene being absent) and in the second step the thus obtained reaction product having unreacted OH groups is reacted in the presence of i-butene (the acetal being absent) to react the still free OH groups. What the inventors have recognized, and what the prior art, including Wessendorf, fail to recognize, is that in reaction with glycerine there is competition between acetal and i-butene. It was found that the acetal will not easily react with the reaction product of glycerine and i-butene because of the steric hinderance of the i-butene group, whereas the i-butene will easily react with the reaction product of the glycerine and the acetal because this does not give steric hinderance to the i-butene. The order of the reaction (first acetal and after completion of that reaction the reaction with i-butene) is mandatory and essentially different from Wessendorf.

In Wessendorf, the acetone and the t-olefin are present at the same time and the reaction with acetone competes with the reaction with i-butene. This causes the production of a number of different reaction products, a large number of which still contain unreacted hydroxyl groups (see, page 7, lines 4-10); in particular 42.2% Di-t-butoxy propanol and even 4.3% mono-t-butoxyl propandiol and 1,2% of 2,2 dimethyl-4-hydroxymethyl-1,3-dioxolane. Thus, in the Wessendorf reference, in example 4 a total of 47.7% still contain hydroxyl groups.

Applicants note that the Examiner has not addressed this point in the latest office action, but rather suggests that Applicants rely on 95% purity of the product as a point of difference between Wessendorf and claim 1 of the present invention. This is incorrect and Applicants would like to emphasize that the stepwise process to prevent steric hinderance of the i-butene (as discussed above) is an essential, non-obvious difference over Wessendorf. Moreover, Wessendorf does not appreciate the issue of steric hinderance of i-butene at all in the reaction taught in Wessendorf. As such, Applicants submit that Wessendorf, alone or in combination with common knowledge cannot teach or suggest the claimed invention as amended. Indeed, the Examiner has provided suggestion for modification of Wessendorf to arrive at the claimed invention. As such, there can be no reasonable expectation of success.

Further, on page 7 of the pending office action the Examiner suggests that “in the case of purity, it would have been obvious to one of ordinary skill in the art to purify a compound to more than 95% pure by separating out other compounds.” Applicants respectfully submit that this is not correct. The product obtained in the method according to the invention has a very low OH content (>95% purity of the reaction product) and does not need to be purified before being added to the fuel whereas the product directly obtained by the process in Wessendorf still has almost 70% hydroxyl containing compounds. It was not known that the use of the product obtained by the process according to the invention brings the advantage of reduced particle emission in fuel. Wessendorf is silent about particle emission. Wessendorf adds to the fuel a composition comprising close to 70% of hydroxyl containing compounds in order to reduce the octanenumber. It is entirely not obvious to purify one specific components of the many different components present in the composition of Wessendorf to get in high purity the product according to the invention. That would be incorrectly applied hindsight as there is no incentive to purify either one of the components in Wessendorf to achieve reduced particle emission.

Therefore, Applicants submit that the §103 rejection of claims 1, 3-4 and 8-14 as amended in view of Wessendorf is improper and should be withdrawn.

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Extension of Time

Any extension of time that may be deemed necessary to further the prosecution of this application is hereby requested.

Authorization to Charge Fees

The Commissioner is authorized to charge any additional fees which may be required, or credit any overpayment, to Deposit Account No. 08-3038, referencing the docket number shown above.

Authorization to Communicate via email

Pursuant to MPEP 502.03, authorization is hereby given to the USPTO to communicate with Applicant's representative concerning any subject matter of this application by electronic mail. I understand that a copy of these communications will be made of record in the application file. Applicant's representative, Coraline J. Haitjema, can be reached at email address [haitjemac@howrey.com](mailto:haitjemac@howrey.com).

The Examiner may also contact the undersigned by telephone at the number given below in order to resolve any questions (note, this telephone number is an Amsterdam phone number, Amsterdam time is 6 hours ahead of US east coast time).

Respectfully submitted,

/cjhaitjema/

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